



SEQUENCE LISTING

<110> Grogan, Case C.
Hevey, Michael C.
Schmaljohn, Alan, L.

<120> Chimeric Filovirus Glycoprotein

<130> 003/243/SAP

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Leu Gln Lys Thr Glu Asp Val His Leu Met
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Gly Phe Thr Leu Ser Gly Gln Lys Val Ala

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Thr Cys Tyr Asn Ile Ser Val Thr Asp Pro		
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Ser Gly Lys Ser Leu Leu Leu Asp Pro Pro		
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Thr Asn Ile Arg Asp Tyr Pro Lys Cys Lys		
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Thr Ile His His Ile Gln Gly Gln Asn Pro		
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Gly Ala Phe Phe Leu Tyr Asp Arg Ile Ala		
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Ser Thr Thr Met Tyr Arg Gly Lys Val Phe		
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Asn Lys Thr Val His Lys Met Ile Phe Ser		
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Ser Asn Gly Thr Gln Thr Asn Asp Thr Gly		
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Cys Phe Gly Ala Leu Gln Glu Tyr Asn Ser		
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Thr Lys Asn Gln Thr Cys Ala Pro Ser Lys		
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Ile Pro Pro Pro Leu Pro Thr Ala Arg Pro		
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Ala Thr Lys Leu Asn Thr Thr Asp Pro Ser		
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Ser Asp Asp Glu Asp Leu Ala Thr Ser Gly		
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Glu Leu Asp Lys Asn Asn Thr Thr Ala Gln		

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	335	340
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	345	350
Phe Ser Thr Leu	Ser Ala Pro Leu Gln	Asn
	355	360
Thr Thr Asn Asp	Asn Thr Gln Ser Thr	Ile
	365	370
Thr Glu Asn Glu	Gln Thr Ser Ala Pro	Ser
	375	380
Ile Thr Thr Leu	Pro Pro Thr Gly Asn	Pro
	385	390
Thr Thr Ala Lys	Ser Thr Ser Ser Lys	Lys
	395	400
Gly Pro Ala Thr	Thr Ala Pro Asn Thr	Thr
	405	410
Asn Glu His Phe	Thr Ser Pro Pro Pro	Thr
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Pro Ser Ser Thr	Ala Gln His Leu Val	Tyr
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Phe Arg Arg Lys	Arg Ser Ile Phe Trp	Lys
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Glu Gly Asp Ile	Phe Pro Phe Leu Asp	Gly
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Leu Ile Asn Thr	Glu Ile Asp Phe Asp	Pro
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Ile Pro Asn Thr	Glu Thr Ile Phe Asp	Glu
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Ser Pro Ser Phe	Asn Thr Ser Thr Asn	Glu
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Val Gln Glu Asp	Asp Leu Ala Ala Gly	Leu
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Ser Trp Ile Pro	Phe Phe Gly Pro Gly	Ile
	545	540
Glu Gly Leu Tyr	Thr Ala Gly Leu Ile	Lys
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Asn Gln Asn Asn	Leu Val Cys Arg Leu	Arg
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Arg Leu Ala Asn	Gln Thr Ala Lys Ser	Leu
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Glu Leu Leu Leu	Arg Val Thr Thr Glu	Glu
	585	580
Arg Thr Phe Ser	Leu Ile Asn Arg His	Ala
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Ile Asp Phe Leu	Leu Thr Arg Trp Gly	Gly

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Gly Gly Lys Trp	Trp Thr Ser Asp Trp	Gly
	655	650
Val Leu Thr Asn	Leu Gly Ile Leu Leu	Leu
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25 30
Gln Asp Val Asp Ser Val Cys Ser Gly Thr
35 40
Leu Gln Lys Thr Glu Asp Val His Leu Met
45 50
Gly Phe Thr Leu Ser Gly Gln Lys Val Ala
55 60
Asp Ser Pro Leu Glu Ala Ser Lys Arg Trp
65 70
Ala Phe Arg Thr Gly Val Pro Pro Lys Asn
75 80
Val Glu Tyr Thr Glu Gly Glu Glu Ala Lys
85 90
Thr Cys Tyr Asn Ile Ser Val Thr Asp Pro
95 100
Ser Gly Lys Ser Leu Leu Leu Asp Pro Pro
105 110
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His Ala Gln Gly Ile Ala Leu His Leu Trp
135 140
Gly Ala Phe Phe Leu Tyr Asp Arg Val Ala

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Asn Lys Thr Val	His Arg Met Ile Phe	Ser	
	175		180
Arg Gln Gly Gln	Gly Tyr Arg His Met	Asn	
	185		190
Leu Thr Ser Thr	Asn Lys Tyr Trp Thr	Ser	
	195		200
Ser Asn Glu Thr	Gln Arg Asn Asp Thr	Gly	
	205		210
Cys Phe Gly Ile	Leu Gln Glu Tyr Asn	Ser	
	215		220
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	225		230
Lys Pro Pro Ser	Leu Pro Thr Val Thr	Pro	
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	245		250
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	255		260
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	265		270
Ser Gly Ser Gly	Glu Gln Gly Pro His	Thr	
	275		280
Thr Leu Asn Val	Val Thr Glu Gln Lys	Gln	
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Ser Ser Thr Ile	Leu Ser Thr Pro Ser	Leu	
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	335		340
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	345		350
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Ser Lys His Pro	Thr Asn Ser Ser Pro	Asp	

	415	420
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Phe Arg Lys Lys	Arg Ser Ile Leu Trp Arg	
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Leu Ile Asn Ala	Pro Ile Asp Phe Asp Pro	
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Val Pro Asn Thr	Lys Thr Ile Phe Asp Glu	
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	475	480
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	485	490
Thr Leu Ser Tyr	Phe Pro Asn Ile Asn Glu	
	495	500
Asn Thr Ala Tyr	Ser Gly Glu Asn Glu Asn	
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Glu Gly Leu Tyr	Thr Ala Val Leu Ile Lys	
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Glu Gln Lys Glu	Gly Thr Gly Trp Gly Leu	
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Gly Gly Lys Trp	Trp Thr Ser Asp Trp Gly	
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Val Leu Thr Asn	Leu Gly Ile Leu Leu Leu	
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Ile	Leu	Glu	Ile	Ala	Ser	Asn	Asn	Gln	Pro	
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Gln	Asn	Val	Asp	Ser	Val	Cys	Ser	Gly	Thr	
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Gly	Phe	Thr	Leu	Ser	Gly	Gln	Lys	Val	Ala	
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Cys	Phe	Gly	Ala	Leu	Gln	Glu	Tyr	Asn	Ser	
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Thr	Lys	Asn	Gln	Thr	Cys	Ala	Pro	Ser	Lys	
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Ile	Pro	Pro	Pro	Leu	Pro	Thr	Ala	Arg	Pro	
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Pro	Ser	Met	Pro	Pro	His	Asn	Thr	Thr	Thr
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Asn	Glu	His	Phe	Thr	Ser	Pro	Pro	Pro	Thr
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Pro	Ser	Ser	Thr	Ala	Gln	His	Leu	Val	Tyr
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Leu	Ile	Asn	Ala	Pro	Ile	Asp	Phe	Asp	Pro
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Asp	Gln	His	Ala	Ser	Pro	Asn	Ile	Ser	Leu
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Thr	Leu	Ser	Tyr	Phe	Pro	Asn	Ile	Asn	Glu
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Asn	Thr	Ala	Tyr	Ser	Gly	Glu	Asn	Glu	Asn
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Val	Gln	Glu	Asp	Asp	Leu	Ala	Ala	Gly	Leu	
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Ser	Trp	Ile	Pro	Phe	Phe	Gly	Pro	Gly	Ile	
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Glu	Gly	Leu	Tyr	Thr	Ala	Val	Leu	Ile	Lys	
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Glu	Leu	Leu	Leu	Arg	Val	Thr	Thr	Glu	Glu	
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Arg	Thr	Phe	Ser	Leu	Ile	Asn	Arg	His	Ala	
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Ile	Asp	Phe	Leu	Leu	Thr	Arg	Trp	Gly	Gly	
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Thr	Cys	Lys	Val	Leu	Gly	Pro	Asp	Cys	Cys	
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Ser	Glu	Gln	Ile	Asp	Gln	Ile	Lys	Lys	Asp	
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Val	Leu	Thr	Asn	Leu	Gly	Ile	Leu	Leu	Leu	
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Leu	Ser	Ile	Ala	Val	Leu	Ile	Ala	Leu	Ser	
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cacttgaggt	catccacaat	agcacattac	aggttagtga	tgtcgacaaa	150
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aaagatgggg	cttcaggtcc	ggtgtccac	caaaggtggt	caattatgaa	300
gctggtgaat	gggctgaaaa	ctgctacaat	cttgaaatca	aaaaacctga	350
cgggagtgag	tgtctaccag	cagcgccaga	cgggattcgg	ggcttcccc	400
ggtgccggta	tgtgcacaaa	gtatcaggaa	cgggaccgtg	tgccggagac	450

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aattagatat caggctaccg gttttggaac caatgagaca gagtacttgt 700
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cagtttctgc tccagctgaa tgagacaata tatacaagtg ggaaaaggag 800
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catcagtggc cagagtccgg cgcgaaactt ttccgaccca gggaccaaca 1000
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<212> PRT

<213> Artificial Sequence

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<223> chimeric protein

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                25                30
Phe Ser Ile Pro Leu Gly Val Ile His Asn
                35                40
Ser Thr Leu Gln Val Ser Asp Val Asp Lys
                45                50
Leu Val Cys Arg Asp Lys Leu Ser Ser Thr
                55                60
Asn Gln Leu Arg Ser Val Gly Leu Asn Leu

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Glu	Gly	Asn	Gly	Val	Ala	Thr	Asp	Val	Pro
				75					80
Ser	Ala	Thr	Lys	Arg	Trp	Gly	Phe	Arg	Ser
				85					90
Gly	Val	Pro	Pro	Lys	Val	Val	Asn	Tyr	Glu
				95					100
Ala	Gly	Glu	Trp	Ala	Glu	Asn	Cys	Tyr	Asn
				105					110
Leu	Glu	Ile	Lys	Lys	Pro	Asp	Gly	Ser	Glu
				115					120
Cys	Leu	Pro	Ala	Ala	Pro	Asp	Gly	Ile	Arg
				125					130
Gly	Phe	Pro	Arg	Cys	Arg	Tyr	Val	His	Lys
				135					140
Val	Ser	Gly	Thr	Gly	Pro	Cys	Ala	Gly	Asp
				145					150
Phe	Ala	Phe	His	Lys	Glu	Gly	Ala	Phe	Phe
				155					160
Leu	Tyr	Asp	Arg	Leu	Ala	Ser	Thr	Val	Ile
				165					170
Tyr	Arg	Gly	Thr	Thr	Phe	Ala	Glu	Gly	Val
				175					180
Val	Ala	Phe	Leu	Ile	Leu	Pro	Gln	Ala	Lys
				185					190
Lys	Asp	Phe	Phe	Ser	Ser	His	Pro	Leu	Arg
				195					200
Glu	Pro	Val	Asn	Ala	Thr	Glu	Asp	Pro	Ser
				205					210
Ser	Gly	Tyr	Tyr	Ser	Thr	Thr	Ile	Arg	Tyr
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Gln	Ala	Thr	Gly	Phe	Gly	Thr	Asn	Glu	Thr
				225					230
Glu	Tyr	Leu	Phe	Glu	Val	Asp	Asn	Leu	Thr
				235					240
Tyr	Val	Gln	Leu	Glu	Ser	Arg	Phe	Thr	Pro
				245					250
Gln	Phe	Leu	Leu	Gln	Leu	Asn	Glu	Thr	Ile
				255					260
Tyr	Thr	Ser	Gly	Lys	Arg	Ser	Asn	Thr	Thr
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Gly	Lys	Leu	Ile	Trp	Lys	Val	Asn	Pro	Glu
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Ile	Asp	Thr	Thr	Ile	Gly	Glu	Trp	Ala	Phe
				285					290
Trp	Glu	Thr	Lys	Lys	Asn	Leu	Thr	Arg	Lys
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Ile	Arg	Ser	Glu	Glu	Leu	Ser	Phe	Thr	Val
				305					310
Val	Ser	Asn	Gly	Ala	Lys	Asn	Ile	Ser	Gly
				315					320
Gln	Ser	Pro	Ala	Arg	Thr	Ser	Ser	Asp	Pro
				325					330
Gly	Thr	Asn	Thr	Thr	Thr	Glu	Asp	His	Lys

Ile Met Ala Ser	335	340
Glu Asn Ser Ser Ala Met	345	350
Val Gln Val His Ser Gln Gly Arg Glu Ala	355	360
Ala Val Ser His Leu Thr Thr Leu Ala Thr	365	370
Ile Ser Thr Ser Pro Gln Ser Leu Thr Thr	375	380
Lys Pro Gly Pro Asp Asn Ser Thr His Asn	385	390
Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu	395	400
Ala Thr Gln Val Glu Gln His His Arg Arg	405	410
Thr Asp Asn Asp Ser Thr Ala Ser Asp Thr	415	420
Pro Ser Ala Thr Thr Ala Ala Gly Pro Pro	425	430
Lys Ala Glu Asn Thr Asn Thr Ser Lys Ser	435	440
Thr Asp Phe Leu Asp Pro Ala Thr Thr Thr	445	450
Ser Pro Gln Asn His Ser Glu Thr Ala Gly	455	460
Asn Asn Asn Thr His His Gln Asp Thr Gly	465	470
Glu Glu Ser Ala Ser Ser Gly Lys Leu Gly	475	480
Leu Ile Thr Asn Thr Ile Ala Gly Val Ala	485	490
Gly Leu Ile Thr Gly Gly Arg Arg Thr Arg	495	500
Arg Ser Ala Ile Val Asn Ala Gln Pro Lys	505	510
Cys Asn Pro Asn Leu His Tyr Trp Thr Thr	515	520
Gln Asp Glu Gly Ala Ala Ile Gly Leu Ala	525	530
Trp Ile Pro Tyr Phe Gly Pro Ala Ala Glu	535	540
Gly Ile Tyr Ile Glu Gly Leu Met His Asn	545	550
Gln Asp Gly Leu Ile Cys Gly Leu Arg Gln	555	560
Leu Ala Asn Glu Thr Thr Gln Ala Leu Gln	565	570
Leu Phe Leu Arg Ala Thr Thr Glu Leu Arg	575	580
Thr Phe Ser Ile Leu Asn Arg Lys Ala Ile	585	590
Asp Phe Leu Leu Gln Arg Trp Gly Gly Thr	595	600
Cys His Ile Leu Gly Pro Asp Cys Cys Ile		

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Glu Pro His Asp	Trp Thr Lys Asn Ile Thr		
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Asp Lys Ile Asp	Gln Ile Ile His Asp Phe		
	625		630
Val Asp Lys Thr	Leu Pro Asp Gln Gly Asp		
	635		640
Asn Asp Asn Trp	Trp Thr Gly Trp Arg Gln		
	645		650
Trp Ile Pro Ala	Gly Ile Gly Val Thr Gly		
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Val Ile Ile Ala	Val Ile Ala Leu Phe Cys		
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Ile Cys Lys Phe	Val Phe		
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taaagttaaa actgttcac atattcaagg tcaaaaccct catgcacagg 400
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aaggttatcg tcacatgaac ttgacctcca ccaataaata ttggacaagc 600
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aggaaactgg ctgggggtcta ggtggcaaat ggtggacatc tgactgggggt 1950
gttctcacca atttgggcat cctgctacta ttatctatag ctgttctgat 2000
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<212> PRT
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              25              30
Gln Asp Val Asp Ser Val Cys Ser Gly Thr
              35              40
Leu Gln Lys Thr Glu Asp Val His Leu Met
              45              50
Gly Phe Thr Leu Ser Gly Gln Lys Val Ala
              55              60
Asp Ser Pro Leu Glu Ala Ser Lys Arg Trp
              65              70
Ala Phe Arg Thr Gly Val Pro Pro Lys Asn
              75              80
Val Glu Tyr Thr Glu Gly Glu Glu Ala Lys
              85              90
Thr Cys Tyr Asn Ile Ser Val Thr Asp Pro
              95             100
Ser Gly Lys Ser Leu Leu Leu Asp Pro Pro
             105             110
Ser Asn Ile Arg Asp Tyr Pro Lys Cys Lys
             115             120
Thr Val His His Ile Gln Gly Gln Asn Pro
             125             130
His Ala Gln Gly Ile Ala Leu His Leu Trp
             135             140
Gly Ala Phe Phe Leu Tyr Asp Arg Val Ala
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Ser Thr Thr Met Tyr Arg Gly Lys Val Phe
             155             160
Thr Glu Gly Asn Ile Ala Ala Met Ile Val

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Arg Gln Gly Gln	Gly Tyr Arg His Met Asn		
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Leu Thr Ser Thr	Asn Lys Tyr Trp Thr Ser		
	195		200
Ser Asn Glu Thr	Gln Arg Asn Asp Thr Gly		
	205		210
Cys Phe Gly Ile	Leu Gln Glu Tyr Asn Ser		
	215		220
Thr Asn Asn Gln	Thr Cys Pro Pro Ser Leu		
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Lys Pro Pro Ser	Leu Pro Thr Val Thr Pro		
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Ser Ile His Ser	Thr Asn Thr Gln Ile Asn		
	245		250
Thr Ala Lys Ser	Gly Thr Met Asn Pro Ser		
	255		260
Ser Asp Asp Glu	Asp Leu Met Ile Ser Gly		
	265		270
Ser Gly Ser Gly	Glu Gln Gly Pro His Thr		
	275		280
Thr Leu Asn Val	Val Thr Glu Gln Lys Gln		
	285		290
Ser Ser Thr Ile	Leu Ser Thr Pro Ser Leu		
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His Pro Ser Thr	Ser Gln His Glu Gln Asn		
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Ser Thr Asn Pro	Ser Arg His Ala Val Thr		
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Glu His Asn Gly	Thr Asp Pro Thr Thr Gln		
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Pro Ala Thr Leu	Leu Asn Asn Thr Asn Thr		
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Thr Pro Thr Tyr	Asn Thr Leu Lys Tyr Asn		
	345		350
Leu Ser Thr Pro	Ser Pro Pro Thr Arg Asn		
	355		360
Ile Thr Asn Asn	Asp Thr Gln Arg Glu Leu		
	365		370
Ala Glu Ser Glu	Gln Thr Asn Ala Gln Leu		
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Asn Thr Thr Leu	Asp Pro Thr Glu Asn Pro		
	385		390
Thr Thr Gly Gln	Asp Thr Asn Ser Thr Thr		
	395		400
Asn Ile Ile Met	Thr Thr Ser Asp Ile Thr		
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Ser Lys His Pro	Thr Asn Ser Ser Pro Asp		
	415		420
Ser Ser Pro Thr	Thr Arg Pro Pro Ile Tyr		
	425		430
Phe Arg Lys Lys	Arg Ser Ile Phe Trp Lys		

	435		440
Glu Gly Asp Ile	Phe Pro Phe Leu Asp	Gly	
	445		450
Leu Ile Asn Thr	Glu Ile Asp Phe Asp	Pro	
	455		460
Ile Pro Asn Thr	Glu Thr Ile Phe Asp	Glu	
	465		470
Ser Pro Ser Phe	Asn Thr Ser Thr Asn	Glu	
	475		480
Glu Gln His Thr	Pro Pro Asn Ile Ser	Leu	
	485		490
Thr Phe Ser Tyr	Phe Pro Asp Lys Asn	Gly	
	495		500
Asp Thr Ala Tyr	Ser Gly Glu Asn Glu	Asn	
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Asp Cys Asp Ala	Glu Leu Arg Ile Trp	Ser	
	515		520
Val Gln Glu Asp	Asp Leu Ala Ala Gly	Leu	
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Ser Trp Ile Pro	Phe Phe Gly Pro Gly	Ile	
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Glu Gly Leu Tyr	Thr Ala Gly Leu Ile	Lys	
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Asn Gln Asn Asn	Leu Val Cys Arg Leu	Arg	
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Arg Leu Ala Asn	Gln Thr Ala Lys Ser	Leu	
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Glu Leu Leu Leu	Arg Val Thr Thr Glu	Glu	
	575		580
Arg Thr Phe Ser	Leu Ile Asn Arg His	Ala	
	585		590
Ile Asp Phe Leu	Leu Thr Arg Trp Gly	Gly	
	595		600
Thr Cys Lys Val	Leu Gly Pro Asp Cys	Cys	
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Ile Gly Ile Glu	Asp Leu Ser Lys Asn	Ile	
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Glu Gln Lys Glu	Glu Thr Gly Trp Gly	Leu	
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Gly Gly Lys Trp	Trp Thr Ser Asp Trp	Gly	
	645		650
Val Leu Thr Asn	Leu Gly Ile Leu Leu	Leu	
	655		660
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<223> primer
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